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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,953	11/12/2003	Teng Xu	2003B117	9535

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EXAMINER

BULLOCK, IN SUK C

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/712,953

Applicant(s)

XU ET AL.

Examiner

In Suk Bullock

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-75 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 31-33 are objected to because of the following informalities: there is a period between the words sieve and prior. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-12 and 56-62 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 9, 56, and 59, recite the limitation "the oxygenate removal zone."

There is insufficient antecedent basis for this limitation in the claims. Also, it is not clear if the recitation "the oxygenate removal zone" is an error and applicants mean the pretreatment zone or if there is an oxygenate removal zone in the claimed process.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1764

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-75 are rejected under 35 U.S.C. 103(a) as being obvious over Williams et al. (U.S. Patent 6,657,022).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject

Art Unit: 1764

matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

The Williams et al. reference teaches a process for producing olefins from an oxygenate feedstock using a SAPO molecular sieve catalyst comprising an integrated hydrocarbon co-catalyst within the porous framework of said catalyst. The hydrocarbon material is introduced or produced from an oxygenated feedstock into the porous framework of the silicoaluminophosphate molecular sieves under appropriate conditions. Desirably, co-catalyst formation is carried out at a temperature above about 250° C. See col. 3, lines 49-63; col. 4, lines 53-65; and col. 7, lines 53-64. The co-catalyst is present at about 0.1-23 wt.% based on the total weight of the silicoaluminophosphate molecular sieve (col. 11, lines 3-18). Because it is difficult to distinguish between carbonaceous co-catalyst composition and carbonaceous coke, it is desirable to maintain the catalyst within the reactor at an average carbonaceous content of from about 2 wt.% to about 30 wt.% (col. 15, lines 10-28). The oxygenate feedstock includes aldehydes (col. 11, line 57 to col. 12, line 6). The oxygenate conversion process is performed at temperature range of 200° to about 700° C and at a WHSV of at

Art Unit: 1764

least  $1 \text{ hr}^{-1}$  (col. 13, lines 9-15 and col. 14, lines 6-14). Oxygenate conversion rate is maintained in the range of about 50% to about 90% (col. 13, lines 52-65). The olefins produced from the process can be polymerized to form polyolefins in the presence of a catalyst (col. 17, lines 45-59).

The difference between the Williams et al. reference and the claimed invention is that the reference does not explicitly teach a  $\text{C}_2$  to  $\text{C}_4$  aldehyde composition in the pretreatment of the SAPO catalyst.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teaching of Williams et al. by employing the claimed  $\text{C}_2$  to  $\text{C}_4$  aldehyde composition in the pretreatment of the SAPO catalyst with the expectation of achieving similar results because Williams et al. has taught using aldehydes in general.

With respect to the claimed limitations directed to the carbon content of the molecular sieve prior to contact with the aldehyde, it is acknowledged that the reference is silent. However, it is the position of the examiner that the molecular sieve of the reference would meet the claimed limitation because a fresh molecular sieve would have an insignificant amount of carbon, if any at all, prior to pretreatment with the aldehyde.

With respect to the claimed limitations directed to the temperature and WHSV at which the aldehyde composition is contacted with the molecular sieve in the pretreatment zone, it is within the level of one having ordinary skill in the art at the time

Art Unit: 1764

the invention was made to have determined the optimum conditions to achieve desired results.

With respect to the weight ratio of aldehyde to molecular sieve in the pretreatment zone, one of ordinary skill in the art would have been able to determine the optimum ratio to achieve desired results especially in view of Williams et al. teaching the co-catalyst is present at about 0.1-23 wt.% based on the total weight of the silicoaluminophosphate molecular sieve (col. 11, lines 3-18).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patents 6,734,330 and 6,743,474 teach catalyst pretreatment in an oxygenate to olefins conversion process comprising a silicoaluminophosphate molecular sieve having an integrated hydrocarbon co-catalyst within the porous framework of said molecular sieve.

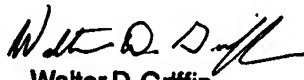
Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.B.

  
Walter D. Griffin  
Primary Examiner